

12

9(4)

AUTHORS: Minakova, I.I., Stepanova, N.V., and Shuvalov, A.T. SOV/55-58-4-14/31

TITLE: Investigation of the Synchronization of a Reflex Klystron for a Small Sinusoidal Electro-Motive Force (Issledovaniye sinkhronizatsii otrazhatel'nogo klistrona maloy sinusoidal'noy odc.)

PERIODICAL: Vestnik Moskovskogo universiteta, Seriya tekhnicheskii, matematicheskii, fizicheskii, khimicheskii, 1958, Nr 4, pp 125-136 (USSR)

ABSTRACT: The synchronization of a reflex klystron is investigated theoretically and experimentally if there acts a small electro-motive force, the frequency of which synchronizes the frequency of the free vibrations. It is shown that the appearance of a delay in the neighbouring system, for an action of an outer electro-motive force, leads to several phenomena: Deformation of the amplitude curve and the region of the phase instability; beside the carrying along of the frequency of permanent vibrations by the frequency of the outer force there also appears a "repulsion" of the frequencies. The dependence of the width of the strip of synchronization and the maximal amplitude on the outer force, however, remain linear in a vast interval also for

Card 1/2

Investigation of the Synchronization of a Reflex  
Klystron for a Small Sinusoidal Electro-Motive  
Force

SOV/55-58-4-14/31

a delay. The theoretical and experimental results agreed very well. Also results of P.A. Ryazin [Ref 7] are confirmed. A method of K.F. Teodorichik [Ref 5] is used. There are 6 figures, and 8 references, 7 of which are Soviet, and 1 Swiss.

ASSOCIATION: Kafedra kolebaniy (Chair of Oscillations)

SUBMITTED: August 9, 1957

Card 2/2

~~2(6)~~ 9.4210

68046  
SOV/55-59-3-14/32

AUTHORS: Lemzel', Yu. R., Minakova, I. I., Savel'yeva, Z. I.

TITLE: The Synchronization of a Magnetron by a Weak External Force

PERIODICAL: Vestnik Moskovskogo universiteta. Seriya matematiki, mekhaniki, astronomii, fiziki, khimii, 1959, Nr 3, pp 105 - 111 (USSR)

ABSTRACT: The synchronization of the natural oscillations of a magnetron by the oscillations of a more stable ultrahigh-frequency generator of low power is very promising. A simple equivalence scheme is able to furnish qualitative data concerning all fundamental features of the phenomena in this system. The synchronization of a magnetron with several resonators is of considerable practical interest. The equivalence scheme of the magnetron may be represented as a parallel circuit with "concentrated" (sosedotochenyy) parameters  $L, C$ , with the conductivity  $G$ , and with parallel connected negative nonlinear conductivity  $-Y_e = g_e + ib_e$ . The authors carry out investigations for small active electromotive forces near the synchronization frequencies and confine themselves to dealing with small frequency-deviation. The n-type conductivity does not depend on the frequency of

Card 1/3

4

The Synchronization of a Magnetron by a Weak External Force

68046  
SOV/55-59-3-14/32

oscillations. The reactive component of this conductivity in the general case depends only slightly on the voltage amplitude and has capacitative character; the active component depends non-linearly on high-frequency voltage amplitude. Next, an equation is given for the high-frequency voltage  $v$  in the circuit. If detuning is only slightly greater than the band width of synchronization, the solution of the aforementioned equation may be written down as  $v = \sin(pt - \psi)$  if amplitude and phase change only little in the course of one period. Equations for amplitude and phase are given, and, besides, also equations for a system in steady synchronous operation if an attuned load  $Z_0$  exists.

From these equations then follow equations for the amplitude curve within the synchronization band and for the stability conditions for the periodic solutions found. The amplitude curves of the system investigated are symmetric and are similar to the amplitude curves of Thomson's system. The synchronization of the magnetron destined for continuous operation was experimentally investigated in the centimeter range. The synchronization of magnetron oscillations has the same character as that of a

Card 2/3

The Synchronization of a Magnetron by a Weak External Force

68046  
SOV/55-59-3-14/32

Thomson generator in the case of radiofrequencies. Synchronization band width increases with increasing effective power, and with an increase in the power of the magnetron to be synchronized, this band becomes narrower. Synchronization band width depends linearly on the root of the ratio between klystron power and magnetron power. The curves drawn for three magnetrons have different slopes. The maximum width of the relative catching band (polosa zakhvatyvaniya) was 0.2%. By means of certain variations of the wave guide it was possible to broaden the synchronization band, which will form the subject of an investigation in a paper yet to be published. In the case of the circuit under investigation, the magnetron behaves like a system with optimum retardation in the case of  $\pi$ -oscillations. The use of a ferrite valve permits synchronization of a more powerful generator by a less powerful one. There are 4 figures and 6 references, 4 of which are Soviet.

ASSOCIATION: Kafedra kolebaniy (Chair for Oscillations)

SUBMITTED: February 11, 1959  
Card 3/3

BENDRIKOV, G.A.; KRASNUSHKIN, P.Ye.; REYKHRUDEL', E.M.; POTEMKIN, V.V.;  
 MUSTEL', Ye.R.; RZHEVKIN, K.S.; IVANOV, I.V.; KHARLAMOV, A.A.;  
 TIKHONOV, Yu.V.; STRELKOVA, L.P.; KAPTSOV, L.N.; ORDANOVICH,  
 A.Ye.; KHOKHLOV, R.V.; VORONIN, E.S.; BEBESTOVSKIY, G.N.; KRASNO-  
 PEVTSEV, Yu.V.; MINAKOVA, I.I.; YASTREBTSEVA, T.N.; SEMENOV, A.A.;  
 VINOGRADOVA, M.B.; KARPEYEV, G.A.; DRACHEV, L.A.; TROPIMOVA, N.B.;  
 SIZOV, V.P.; RZHEVKIN, S.N.; VELIZHANINA, K.A.; NESTEROV, V.S.;  
 SPIVAK, G.V., red.; NOSTREVA, I.A., red.; GEORGIYEVA, G.I., tekhn.  
 red.

[Special physics practicum] Spetsial'nyi fizicheskii praktikum.  
 Moskva, Izd-vo Mosk.univ. Vol.1. [Radio physics and electronics]  
 Radiofizika i elektronika. Sost. pod red. G.V.Spivaka. 1960.  
 600 p.

(MIRA 13:6)

1. Professorsko-prepodavatel'skiy kollektiv fizicheskogo fakul'teta  
 Moskovskogo universiteta im. M.V.Lomonosova (for all except Spivak,  
 Nostreva, Georgiyeva).

(Radio)

(Electronics)

25814

S/142/60/003/006/004/016  
E033/E135

9.4220

AUTHORS: Boyko, B.P., Minakova, I.I., and Savel'yeva, Z.I.

TITLE: Synchronisation of a reflex klystron loaded by a resonator

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy,  
Radiotekhnika, 1960, Vol.3, No.6, pp. 581-591

TEXT: After brief mention of previous investigations, the author considers the theory of synchronisation, by an external sinusoidal e.m.f., of an oscillator having two degrees of freedom, i.e. of a reflex klystron inductively coupled to an auxiliary loading resonator. The external e.m.f. is connected in series with the loading circuit. Letting the voltages on the oscillator circuit capacity and on the loading circuit capacity be  $x$  and  $y$  respectively, then in a soft regime with symmetrical valve characteristics, the equations of the system in the dimensionless form are:

$$\begin{aligned}\ddot{x} + x &= (1 - \xi^2)x - 2\varepsilon (1 - x^2) \dot{x} - \alpha \ddot{y}; \\ \ddot{y} + y &= (1 - \xi_1^2)y - 2\varepsilon_1 \dot{y} - \alpha_1 \ddot{x} + \frac{1}{2} E_0 \sin \tau,\end{aligned}\quad (1)$$

Card 1/8

Synchronisation of a reflex klystron... <sup>25814</sup>  
S/142/60/003/006/004/016  
E033/E135

where:  $\xi$ ,  $\xi_1$  are the ratios of the partial frequencies of the circuits to the frequency of the external e.m.f;  $\epsilon < 0$  is the dimensionless increment of the oscillator circuit;  $\epsilon_1 > 0$  is the dimensionless decrement of the auxiliary circuit;  $\alpha$ ,  $\alpha_1$  are the coupling coefficients between the circuits. The solution of Eq.(1) for detuning slightly greater than the synchronisation band is sought in the form

$$\left. \begin{aligned} x &= A \sin(\tau - \varphi) \\ y &= B \sin(\tau - \varphi) \end{aligned} \right\}$$

The case when  $\xi = \xi_1$  and  $\alpha = \alpha_1$  is considered and the equation for the family of amplitude curves is:

$$z^3 - z^2 \left[ 8 + \frac{2\epsilon_1 \alpha^2}{\epsilon(\epsilon_1^2 + \Delta^2)} \right] + z \left[ 16 \frac{\epsilon^2 + \Delta^2}{\epsilon^2} + \frac{8\epsilon_1 \epsilon \alpha^2 + \alpha^4 - 8\alpha^2 \Delta^2}{\epsilon^2(\epsilon_1^2 + \Delta^2)} \right] - \frac{\alpha^2 E_0^2}{\epsilon^2(\epsilon_1^2 + \Delta^2)} = 0 \quad (3)$$

Card 2/8

258114

Synchronisation of a reflex klystron ...

S/142/60/003/006/004/016  
E033/E135

where:  $z = \Lambda^2$  and  $1 - \xi^2 \approx 2(1 - \xi) = 2\Delta$ .

Since the general expressions for the boundaries of the regions of stability are very unwieldy, only the particular case of a fixed ratio  $\epsilon_1/|\epsilon| = 1/2$  (which is often approximately true in practice) is considered. Then the conditions for stability are:

(1)  $z > 1;$

(2)  $z^3 - 2z^2 + \left(\frac{16}{3} \Delta_2^2 + \frac{4}{3} \eta^2\right) z + -\frac{16}{3} \Delta_2^2 - \frac{4}{3} \eta^2 + \frac{4}{3} > 0;$

(3)  $z^5 + \left(\frac{4}{3} \eta^2 - \frac{22}{3}\right) z^4 + \left(\frac{256}{9} \Delta_2^2 - \frac{56}{9} \eta^2 + \frac{184}{9}\right) z^3 +$   
 $+ \left(-\frac{1024}{9} \Delta_2^2 + \frac{256}{9} \Delta_2^2 \eta^2 + \frac{92}{9} \eta^2 - \frac{80}{3}\right) z^2 +$  (4)  
 $+ \left(\frac{1280}{9} \Delta_2^2 - \frac{512}{9} \Delta_2^2 \eta^2 - \frac{64}{9} \eta^2 + 16\right) z + \left(-\frac{512}{9} \Delta_2^2 +$   
 $+ \frac{256}{9} \Delta_2^2 \eta^2 + \frac{16}{9} \eta^2 - \frac{32}{9}\right) > 0;$

Card 3/ 8

Synchronisation of a reflex klystron ...

2581h  
S/142/60/003/006/004/016  
E033/E135

$$(4) (12 \Delta_2^2 + 3) z^2 + (-64 \Delta_2^2 + 8\eta^2 - 16) z + 64 \Delta_2^4 + (80 - 32\eta^2) \Delta_2^2 + 4(\eta^2 - 2)^2 > 0. \quad (4)$$

where:  $\Delta_2^2 = \Delta^2/4\epsilon_1^2$ ;  $\eta^2 = \alpha^2/4\epsilon_1^2$ ;  $E_0^2/4\epsilon_1^2 = p^2$ .

The family of amplitude curves  $z = f(\Delta_2)$  for fixed external e.m.f. and inter-circuit coupling values are plotted and the instability regions found (as shown in the figures which are reproduced in the paper). When  $\eta^2 > 1$  and the equality of the partial frequencies of the circuits does not depend on the coupling, then the first condition of stability can be written

$$z = \frac{u_0}{2}$$

where  $u_0 = 4(1 - \frac{\epsilon_1}{|\epsilon|})$ .

When  $\eta^2 < 1$  then the first condition for stability is:

$$z = \frac{v_0}{2}$$

Card 4/8

Synchronisation of a reflex klystron ... 25814  
S/142/60/003/006/004/016  
E033/E135

where  $v_o = 4(1 - \eta^2 \frac{\epsilon_1}{|\epsilon|})$ .

The significance of Eq.(4) is discussed. By substituting  $z = u_o = 4(1 - \frac{\epsilon_1}{|\epsilon|})$  in Eq.(3), the dependence of the absolute value of the synchronisation bandwidth on the external e.m.f. amplitude and on the coupling is obtained:

$$\Delta_2 = \sqrt{(\eta^2 - 1) \pm \eta \frac{P}{A_{02}}}$$

and

$$\Delta_2^2 \max = \frac{P^2}{A_{02}^2} + \sqrt{4 \frac{P^2}{A_{02}^2} \frac{P^4}{A_{02}^4}} \quad (6)$$

where  $A_{02} = \sqrt{u_o}$  = the amplitude of the oscillations of an autonomous system with two degrees of freedom. The synchronisation bandwidths of oscillators with one and two degrees of freedom are then compared. It is shown that with coupling greater than critical Card 5/8

Synchronisation of a reflex klystron ... 25814  
S/142/60/003/006/004/016  
E033/E135

and with small external amplitudes, the synchronisation band divides into two bands which merge into one when the coupling is reduced or when the synchronising amplitude is increased. This bandwidth is substantially wider than the synchronisation bandwidth of an oscillator with only one degree of freedom. The synchronisation of a centimetric reflex klystron oscillator with an auxiliary resonator, consisting of a standard waveguide closed at one end by a piston and at the other by a diaphragm with a rectangular slot, was investigated experimentally. The experimental layout is shown in Fig.5. The following were investigated: 1) the dependence of the power of the synchronised oscillations on the detuning, with fixed coupling between the oscillator and the external resonator and with different synchronising powers; 2) the dependence of the power of the synchronised oscillations on the detuning, with constant synchronising power and variable coupling; 3) the dependence of the synchronisation bandwidth on the ratio of the synchronising power and the power of the synchronised klystron, both with and without the auxiliary resonator. The theoretical and experimental results agreed qualitatively and the data show that, by using the auxiliary resonator, a considerable increase

Card 6/8

Synchronisation of a reflex klystron ... 25814  
S/142/60/003/006/004/016  
E033/E135

(2 to 4 times) in the synchronisation bandwidth can be achieved.  
There are 8 figures and 5 Soviet-bloc references.

ASSOCIATION: Fizicheskiy fakul'tet, Moskovskiy gos. universitet  
im. M.V. Lomonosova (Physics Division of the Moscow  
State University imeni M.V. Lomonosov)

SUBMITTED: to the Editors of NDVSh, July 15 1959.  
to the Editors of Izv. vuz Radiotekhnika, March 24 1960.

Card 7/8

BOYKO, B.P.; MINAKOVA, I.I.

Synchronizing a klystron with a signal sent through the load circuit.  
Vest. Mosk. un. Ser.3: Fiz., astron. 17 no.1:22-32 Ja-F '62.  
(MIRA 15:2)

1. Kafedra teorii kolebaniy fizicheskogo fakul'teta.  
(Klystrons)

BRAGINSKIY, V.B.; MINAKOVA, I.I.; STEPUNIN, P.M.

Low power absolute measurements in the microwave band. Prib. i  
tekh. eksp. 8 no.5:130-133 S-0 '63. (MIRA 16:12)

1. Fizicheskiy fakul'tet Moskovskogo gosudarstvennogo universiteta.

BRAGINSKIY, V.B.; MINAKOVA, I.I.

Effect of the system of measurement of small displacements on the dynamic properties of mechanical oscillatory systems. Vest. Mosk. un. Ser.3:Fiz., astron. 19 no.1:83-85 Ja-F '64. (MIRA 17:4)

1. Kafedra teorii kolebaniy Moskovskogo universiteta.

L 63228-65 EWT(1) IJP(c)  
ACCESSION NR: AP5016393

UR/0120/65/000/006/0183/0187  
535.218:535.231.6-2

14  
10  
B

AUTHOR: Braginskiy, V. E., Minakova, I. I.; Stepunin, P. M.

TITLE: Absolute energy and power measurements in the visible wavelength range by registering the electromagnetic pressure

SOURCE: Pribery i tekhnika eksperimenta, no. 3, 1965, 183-187

TOPIC TAGS: absolute high energy measurement, absolute light momentum measurement, absolute light pressure measurement, visible light energy, electromagnetic pressure

ABSTRACT: The ponderomotor action of electromagnetic radiations has been used in the past for measuring the electromagnetic energy and momentum in the millimeter and centimeter wave range. Recently, various authors pro-

posed (V. B. Braginskiy, I. I. Minakova, P. M. Suspinin, ITE, 1961, no. 5, 130; L. O. Cock, W. L. Flowers, C. B. Arnold, Proc. IRE 1962, 50, no. 7, 1736) and extension of this method to measurements in the visible region. The present paper describes the operating principles, design, and results of testing of such a device capable of absolute measurements of short light  
Card 1/2

L 63228-65

ACCESSION NR: AP5016393

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pulses in the 0.5-100 Joule range and of continuous radiation in the 2-500 .W range. It consists of an electronic device for small shift registration and contains a force calibration unit. Test pulses are 10-3 sec. long. The relative registration error is 2%; the relative accuracy during absolute readings is 22%. Estimates of the limits of applicability of the method and of the necessary registration time intervals are also given. "The authors thank L. P. Lisovskiy, L. A. Rivlin, and Ye. N. Volkova for assistance during the investigation." Orig. art. has: 6 formulas, 3 figures, and 1 table. /08/

ASSOCIATION: Fizicheskiy fakul'tet MGU (Physics Department, MGU)

SUBMITTED: 04May64

ENCL: 00

SUB CODE: EC, EM

NO REF SOV: 002

OTHER: 001

ATD PRESS: 4049

AUTHORS: Nesmeyanov, A. N., Member, Academy of Sciences, USSR, Pecherskaya, K. A., Akhramovich, A. N., Minakova, L. M. SOV/20-121-4-24/54

TITLE: Stereochemistry of  $\sigma, \pi$ - Conjugation (Stereokhimiya  $\sigma, \pi$ -sopryazheniya) Autooxidation of Rigid Allyl Systems (Avtookisleniye zhestkikh allil'nykh sistem)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 121, Nr 4, pp. 660 - 663 (USSR)

ABSTRACT: In earlier papers the authors proved (Ref 1) that in rigid (zhestkiy) bicyclic structures C — H and C — Hg-bondings on the top of the bridge of such structures, in an  $\alpha$ -position to the carbonyl, are not activated by the carbonyl. Neither is under acid action the mercury of  $\alpha$ -chloromercury camphenylone and of mercury-bis- $\alpha$ -camphenylone is substituted nor does an exchange for  $Hg^{2+}$  and  $HgCl_2$  take place. In camphenylone the  $\alpha$ -hydrogen atom is neither treated with nitrous acid nor sulfonated nor brominated. The  $\sigma, \pi$ -conjugation of the system A-C-C=O is usually eliminated when the  $\sigma$ -axis of binding is at right angle to the  $\pi$ -surface.

Card 1/4

Stereochemistry of  $\sigma, \pi$ -Conjugation. Autooxidation  
of Rigid Allyl Systems

SOV/20-121-4-24/54

The aim of this paper is it to clarify if there are similar conditions for the elimination of H-C-C=C-conjugation as were proved by the authors for H-C-C=O-conjugation. For this purpose they investigated such terpene hydrocarbons with respect to their capacity of being oxidizable. In terpene hydrocarbons (thanks to a methylene bridge) the C — H-binding in  $\alpha$ -position to the double binding seems to be spatially attached to the latter, namely bornylene (I), camphene (II) and  $\delta$ -fenchene. Referring to the above mentioned these hydrocarbons are compounds with a rigid structure. It could be proved that these hydrocarbons do not absorb any oxygen after they are kept many hours at temperatures of 40, 60 and 80° in presence of such active initiators as cobalt and manganese stearates. After oxidation they were recovered from the solution in unchanged state. Under such conditions non-rigid allyl systems are easily oxidized by molecular oxygen be it in presence or absence of an initiator. This fact was experimentally proved in the case of related compounds with a non-rigid structure. Thus it could be proved by means of experiments that in the

Card 2/4

Stereochemistry of  $\sigma, \pi$ -Conjugation. Autooxidation  
of Rigid Allyl Systems

SOV/20-121-4-24/54

case of the homolytical  $\sigma, \pi$ -conjugation the influence of  
the same spatial factors occurs as in heterolytical con-  
jugations. There are 1 table and 15 references, 7 of which  
are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR  
(Institute of Elemental-Organic Compounds, AS USSR) Belorusskiy  
gosudarstvennyy universitet im.V.I.Lenina (Belorussian State  
University imeni V.I.Lenin)

SUBMITTED: April 21, 1958

Card 3/4

MTNAKOVA, L. S.

27895

K Voprosu Ob Ob" Yektivnoy Registratsii Adaptatsii Obonyatel'nogo Retseptora.  
Trudy Leningr. San-Gigiyen. Med. in-ta, T. II, 1949, s. 29-56 - Bibliogr; s.  
147-150.

SO: Letopis' Zhurnal'nykh Statey, Vol. 37, 1949

MINAKOVA, L.V.; TITOVA, N.G.

Use of aldolase activity determination in detecting obliterated  
anicteric forms of Botkin's disease. Zhur. mikrobiol. epid. i  
immun. 31 no. 107-108 My '60. (MIRA 13:10)

1. Iz Kirovskoy oblasti sanitarno-epidemiologicheskoy stantsii.  
(HEPATITIS, INFECTIOUS) (ALDOLASE)

MINAKOVA, L.V.; VERONIKINA, N.B.; SOBOLENYKH, I.P.; VERONIKINA, L.L.;  
KHARTONOVA, A.S.

Improvement of the technology of preparing protein hydrolysates.  
Probl. gamat. i perel. krovi 10 no.4:50-53 Apr '69.

(NIRA 18.6)

L. Filial Leningradskogo otzina Trudovogo Krasnogo Znaniya nauchn. -  
issledovatel'skogo Instituta perelivaniya krovi (dir. N.V.  
Svetitskaya), Kiev.

MINAKOVA, M.F.

Clinical aspects of hydrocephalic crises in tumors of the region  
of cerebral ventricles. Trudy Vor. med. inst. 51:204-211 '63.

Clinical aspects of hemiodema. Ibid.:212-214

(MIRA 18:10)

1. Kafedra nervnykh bolezney Voronezhskogo meditsinskogo Instituta.

MINAKOVA, N. Ye.  
(No. N.)

35904

Stratigrafiya Paleogenovy-kh Otlozheniy Fergany I Pritashk-Entskogo Rayona  
Po Faune Foraminifer. --V ogl: N.Ye. Minakova. Trudy In-ta Geologii (Akad.  
Nauk Uzbek. sssr), Vyp. 2, 1948, S. 143-72-- Bibliogr: 17 Nazv.

SO: Letopis' Zhurnal'nykh Statey, Vol. 39, Moskva, 1949

МИНАКОВА, Н. Ye.

Minakova, N. Ye. "On the stratigraphy of Paleogene sediments in the southwestern outliers of the Gissar Range", Doklady Akad. nauk UzSSR, No. 9, 1945, p. 34-36, (Resume in Uzbek).

SO: U-3042, 11 March 53, (Letopis 'nykh Statey, No. 10, 1949).

MINAKOVA, N. YE.

"Foraminifera of the Paleogene Deposits of Fergana and Cis-Tashkent Region,"  
Tr. In-ta geol. AN UzSSR, No 7, 3-39, 1953

The article is the second part of the work of the same title (Ibid., No 2, 1948). It contains a description and representation of 88 species and varieties belonging to 12 families and 26 genera, of which three species and one variant are new. The majority of the species are described primarily for Central Asia.

RZhGeol, No 1, 1955

AKRAMKHODZHAYEV, A.M.; FEDOTOV, Yu.A.; MINAKOVA, N.Ye.; IBRAGIMOV, Z.S.;  
ZHUKOVA, Ye.A.; BABAYEV, A.G., doktor geol.-miner. nauk, otv.  
red.; NURATDINOVA, M.R., red.; MOSHCENKO, Z.V., red.;  
GOR'KOVAYA, Z.P., tekhn. red.

[Geology and some problems of oil and gas potentials in the Kara-  
Kalpak A.S.S.R.] Geologiya i nekotorye voprosy neftegazonosnosti  
Karakalpakii. Tashkent, Izd-vo Akad. nauk Uzbekskoi SSR, 1962.  
162. p. (MIRA 16:1)

1. Akademiya nauk Uzbekskoy SSR, Tashkent. Institut geologii i  
razrabotki neftyanykh i gazovykh mestorozhdeniy.  
(Kara-Kalpak A.S.S.R.--Petroleum geology)  
(Kara-Kalpak A.S.S.R.--Gas, Natural--Geology)

MINAKOVA, N.Ye.

Upper Eocene and Oligocene stratigraphy of the Kyzyl Kum. Trudy  
VSEGEI 102:218-235 '64. (MIRA 18:2)

L 32039-66 EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) JD/DJ  
ACC NR: AP6019203 (N) SOURCE CODE: UR/0121/66/000/006/0027/0028

AUTHOR: Golubev, Yu. M.; Minakhin, N. Ye.

ORG: none

TITLE: Increasing die wear resistance by ultrasonic strain hardening

SOURCE: Stanki i instrument, no. 6, 1966, 27-28

TOPIC TAGS: strain hardening, ultrasonic strain hardening, steel, steel hardening, tool steel, steel wear resistance, steel hardness/U10A steel

ABSTRACT: A new method of strengthening steel parts and tools by ultrasonic strain hardening has been tested under laboratory and production conditions. Ultrasonic vibrations with a frequency of 18-24 kc and an amplitude of 20  $\mu$  when applied to U10A steel under correct conditions increased the surface hardness and improved the surface finish. It created in the surface layer residual compression stresses of 16-18 kg/mm<sup>2</sup>, which substantially increased the steel wear resistance. The steel microhardness increased from 75 to over 100 kg/mm<sup>2</sup>. The effect of ultrasonic strain hardening depends to a great extent on the preceding steel heat treatment and steel initial hardness. The best results were obtained with a steel heat treated to a hardness of 53 Rc. The wear resistance of strain-hardened tools operating under conditions of impact load increased by about 150%. Orig. art. has: 4 figures. [ND]

SUB CODE: 13/ SUBM DATE: none/ ORIG REF: 001/ ATD PRESS: 5019  
Card 1/1 UDC: 621.9.048.6:621.961.2

TRAPEZNIKOVA, O.N.; ~~NOVIKOVA~~, G.Ye.; MINAKOVA, S.V.

Light scattering in crystalline polymers. Part 2: Investigating the temperature dependence of the refraction indices of both the crystalline and the amorphous phase of polychloroprene and determining the extent of crystallization. Opt. i spektr. (MIRA 14:9)  
11 no.3:353-358 S '61.

(Light-Scattering) (Chloroprene-Optical ~~prop~~  
properties)

MINAKOVA, T.

✓ Mineral feed from egg shells P. Panakova, T. Prokof'-  
eva, P. Lyarkova, and T. Minakova (All Union Sci. Re-  
search Inst. Poultry Ind., Moscow) *Moskovaya Ind.*  
S.S.S.R. 27, No. 5 (1959) - About 11.1% of the egg

4

Search List: Poultry, Ind. Muscovy, *V. ...* Ind.  
S.S.R. 27, No. 5, 46-7 (1955). — About 11-13% of the egg  
wt. is shell which consists of about 98-99%  $\text{CaCO}_3$ . An  
industrial installation is described for drying and grinding  
egg shells for manufg. animal feed with an efficiency of 200  
kg. dry egg-shell powder (with max. 3.5%  $\text{H}_2\text{O}$ ) per hr.  
E. Wierbicki

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SSSR 33 no.3:51-53 '62. (MIRA 15:7)

1. Tsentral'nyy nauchno-issledovatel'skiy institut pitsepererabatyvayushchey promyshlennosti.  
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MINAKOVA, TANYA

Moscow's Carpathians. IUn. nat. no.11:15 N'61.

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1. Shkola No.243, Moskva.

(Moscow—Botanical gardens)

PANKOVA, F.I., kand. tekhn. nauk; MINAKOVA, T.F., mladshiy nauchnyy  
sotrudnik

Lengthening the preservation time of fresh eggs in storage.  
Trudy TSNIIPa 9:41-45 '62. (MIRA 16:6)

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Synthesis and transformations of vinyl aryl ethers. Report  
No.13: Synthesis of  $\alpha$ -phenyl vinyl ethers of phenol, o-cresol,  
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(Ethers) (Phenol condensation products)

SHOSTAKOVSKIY, M.F.; SIDEL'KOVSKAYA, F.P.; MINAKOVA, T.T.

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1. Institut organicheskoy khimii im. N.D. Zelinskogo AN SSSR.

SHOSTAKOVSKIY, M.F.; MINAKOVA, T.T.; SIDEL'KOVSKAYA, F.P.

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Ser. khim. no.12:2197-2202 D '64 (MIRA 18:1)

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GOLOVA, O.P.; EPSHTEYN, Ya.V.; SERGEYEVA, V.N.; KALNIN'SH, A.I. [Kalnins, A.];  
ODINTSOV, P.N.; MAKSIMENKO, N.S.; PANASYUK, V.G.; Prinsipal  
uchastnye: MERLIS, N.M.; DURININA, L.I.; BISENIYETSE, S.K. [Biseniece, S.];  
GUNDARS, A.Yu.; FEDORCHENKO, R.I.; MINAKOVA, V.I.

New method for the complete chemical processing of plant tissues.  
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1. Institut vysokomolekulyarnykh soedineniy AN SSSR (for Golova, Epshiteyn, Merlis, Durinina). 2. Institut lesokhozyaystvennykh problem i khimii drevesiny AN Latvyskoy SSR (for Sergeyeva, Kalnin'sh, Odintsov, Bisenietse, Gundars). 3. Krasnodarskiy gidroliznyy zavod (for Maksimenko, Fedorchenko, Minakova). 4. Dnepropetrovskiy sel'skokhozyaystvennyy institut (for Panasyuk).

(Plant cells and tissues)  
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MINAKOVA, Ye.I.

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1. Institut nevrologii (dir. - prof. N.V. Konovalov) AMI  
SSSR, Moskva.  
(CHOREA) (SLEEP THERAPY)

LUKACHER, G.Ya., kand. med. nauk; MINAKOVA, Ye.I., kand. med. nauk

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27 no.12:88-93 O '64. (MIRA, 18:11)

1. Nevrologicheskoye otdeleniye (zav.- kand. med. nauk G.Ya.  
Lukacher) Gorodskoy bol'nitsy No.41 ekspertizy vremennoy  
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SIMIC, C.; PETROVIC, Zl.; MINAKOVIC, Stojanka; SIBALIC, Desanka;  
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Monthly List of East European Accessions (EEAI) LC, Vol. 8, no. 7, July 1959

Uncl.

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fermentation of smooth brome silage. Roczniki nauki rolniczej 87  
no.1:99-106 '62.

1. Zakład Biochemii, Wyższa Szkoła Rolnicza, Olsztyn.

MINALOVICH, K.F.

PHASE I BOOK EXPLOITATION

SOV/6228

Agafonov, Vasilii Prokhorovich, and Aleksey Valer'yanovich Sakovich

Voyennaya svyaz' (Military Communications) Moscow, Voenizdat M-va  
obor. SSSR, 1962. 232 p. Errata slip inserted. 8000 copies  
printed.

Ed.: A. V. Vrublevskiy, Engineer-Colonel; Tech. Ed.: T. F. Myasni-  
kova.

PURPOSE: This book is intended for officers of ground forces and may  
also be useful to officers and noncommissioned officers in signal  
communications who are studying problems in military communications.

COVERAGE: The book discusses the means and types of military communi-  
cations, their tasks and requirements, and methods for the organi-  
zation and development of communications. According to the annota-  
tion, the book is a reflection of the viewpoints of the authors and  
is not to be considered as an official statement regarding military  
communications. The book is based on Soviet and non-Soviet open-

Card 3/4

1/3

Military Communications

30V/6228

source materials. Chapter II, Section 2 was written by V. S. Chernyshev and V. P. Yagodin; Chapter II, Section 3, by M. D. Artamonov; and Chapter II, Sections 4 and 5, by K. F. Minalovich. No personalities are mentioned. There are 27 references, all Soviet.

TABLE OF CONTENTS:

Ch. I. Military Communications: Tasks and Requirements	3
1. From the bonfire and drum to the radio station	3
2. Complexity of troop control in modern combat and operations	12
3. The use of technical means for troop control	14
4. Communication -- the basic means of troop control	16
5. Basic problems in communications	17
6. Requirements for communications	18
Ch. II. Means and Types of Military Communications	22
1. General concept of modern means and types of military communications	22

Card 2/4

2/3

# Military Communications

SOV/6228

2. Means of communication	25
3. Radio-relay means	79
4. Wire lines of communication	94
5. Multiplexing wire lines of communication	108
6. Telephone communication	118
7. Telegraph communication	139
8. Photo-telegaph communication	166
9. Television	176
10. Mobile means of communication	189
11. Means of signal communications	190
12. Use of the means of military communications	191
Ch. III. Signal Communications Troops	
1. Purpose and work of signal communications troops	193
2. Combat training of communications troops	193
3. Some aspects of party-political activity in communications troops	194
4. Combat traditions of communication troops	196
	199

Card 3/4

3/3

MINANOWSKI, A.

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1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.

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1. Department of Parasitology, Faculty of Natural Sciences, Charles  
University, Praha (for Kramar); 2. Parasitological Department, Insti-  
tute of Biology of the Czechoslovak Academy of Sciences, Praha (for  
Minar)

(Mosquitoes)

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(PORTAL VEIN) (HEPATIC ARTERY) (LIVER) (RABBITS)

AN 100 7 5 J.

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Experience with nitrous anesthesia supplemented by intravenous  
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(NITROUS OXIDE, anesthesia and analgesia  
with intravenous meperidine)  
(MEPERIDINE, anesthesia and analgesia  
intravenous, addition to nitrous oxide anesth.)

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(HEMORRHAGE, ther.

rapid extensive intravenous transfusion (Cs))

(BLOOD TRANSFUSION, in var. dis.

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Purpose and methods of hibernation. Cas. lek. cesk. 96 no.47:147-151  
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1. I. chirurgicka Klinika KU v Plzni, prednosta doc. Dr K. Romaneky.  
(HIBERNATION, ARTIFICIAL.  
review (Cz))

*MINAR, J.*  
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1. I. chirurgicka klinika SSM v Plzni, prednosta doc. Dr E. Domansky.  
(BARBITURATES, anesthesia and analgesia,  
5-allyl-5-isobutyl-2-thiobarbituric acid, review (Cs))

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Plzni, prednosta prof. MUDr. K. Bobek. I. chirurgicka klinika lek.  
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(TRANSAMINASES, blood)  
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(SURGERY MINOR anesth. & anagl)

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no.10:666-673 0'60.

(SURGERY MINOR anesth. & analgesia).

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Hazards related to Trendelenburg's position. Cesk. gyn. 26 [40]  
no.7:511-515 Aug '61.

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MINAR, Jiri; FESSL, Vaclav

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I chirurg. klinika lekarska fakulty KU v Pizni, prednosta doc. MUDr.  
J. Spinka.

(ANESTHESIA)

BLECHA, Frantisek; MINAR, Jan

Gradual automation of sawmills. Drevo 18 no.4:146-148 Ap '63.

1. Severomoravske drevarske zavody, Sumperk.

MINAR, J.

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MINAR, J., MD; FESSL, V., MD; SOBESKY, I., MD.

1. Anesthesiological Complex SPN (Anesteziologicka slozka SPN), Pilsen (for Minar); 2. First Surgical Clinic of the Medical Faculty of Charles University, Pilsen Branch (I. chirurgicka klinika lekarske fakulty KU se sidlem v Plzni), Pilsen (for all)

Prague, Prakticky lekar, No 5, 1963, pp 168-169

"The Danger of Ether Anesthesia in Old Patients."

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Rozhl. chir. 42 no.8:544-547 Ag '63.

1. Anesteziologicka slozka SFN v Plzni, vedouci lekar MUDr.  
J. Minar I chirurgicka klinika lekarske fakulty KU se sidlem  
v Plzni, prednosta doc. dr. J. Spinka.  
(HALOTHANE) (NEUROSURGERY) (BRAIN INJURY, ACUTE)  
(INTRACRANIAL PRESSURE) (HEAD INJURIES)

STRELAK, J.; MINAR, J.

Contribution to the anatomy of the rete canalis of the hypoglossal nerve and vertebral vein. Cesk. morf. 11 no.4:301-304 '63.

1. Katedra chorob usnych, nosnych a krenych Lekarskej fakulty Univerzity Komenskeho v Bratislave, veduci doc. dr. J. Lajda a Katedra anatomie Lekarskej fakulty Univerzity Komenskeho, veduci dr. G. Cierny, ScC.

(HYPOGLOSSAL NERVE) (VEINS)  
(VASOMOTOR SYSTEM) (ANATOMY)

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Changes in the biological activity of agropyrene on combined application with humus substances in the cultivation of *Scenedesmus obliquus* (Turp.) Kruger. *Biologia plantarum* 6 no.4:265-272 '64.

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1. Institute of Parasitology, Czechoslovak Academy of Sciences, Prague.

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Rozhl. chir. 43 no.6:372-378 Je'64

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Plzni (vedouci: lekar MUDr. J.Minar) a I. chirurgicka kli-  
nika lekarske fakulty KU [Karlovy university] v Plzni, (pred-  
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1. Laboratorium pre vyskum chirurgickej patofyziologie Lek.  
fak. Univerzity Komenskeho v Bratislave (veduci prof. MUDr.  
M. Kratochvil, Dr.Sc.).

MINAR, J., MUDr.; SAMAN, K.; FESSL, V.

Problems and techniques of halothane anesthesia in pediatric eye surgery. Cesk. oftal. 21 no.3:172-176 My '65

1. Anesteziologicke oddeleni fakultni nemocnice v Plzni (vedouci: MUDr. J. Minar); Očni klinika (prednosta: prof. dr. R. Knobloch, DrSc.), I. chirurgická klinika (prednosta: doc. dr. J. Spinka) lékařské fakulty Karlovy University v Plzni.

MINAR, R.

Vectors in space, their transformation and application. p. 287

GEODETSKI LIST, Zagreb, Vol. 9, No. 7/10, July/Oct. 1955.

SO: EEAL, Vol. 5, No. 7 July 1956

141/444-2-  
Category : CZECHOSLOVAKIA/Optics - Optical technique

K-4

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 2228

Author : Minar, S.

Title : Fogging of Optical Parts

Orig Pub : Jemna mech. a opt., 1956, 1, No 1, 17-18

Abstract : Brief description of phenomena, known in the Russian literature as "films", forming on the surfaces of optical parts of instrument and causing loss of light. Distinction is made between mold films (biological), those made up of fatty substances, and also films produced by interaction of the glass with atmospheric humidity (hygroscopic). The dimension range dropped from 0.001 to 0.01 mm. Films are one of the principal obstacles to the retention of high quality of optical instruments, as was clearly manifested during the last world war.

Card : 1/1

MINAR, S.

Atmospheric corrosion of optical glass in optical instruments. p. 46.

(Jemna Mechanika A Optika. Vol. 2, no. 2, Apr. 1957. Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, no. 10, October 1957. Uncl.

CZECHOSLOVAKIA/Chemical Technology. Chemical Products and  
Their Application. Part 2. - Ceramics. Glass.  
Binders. Concretes. - Glass.

H

Abs Jour: Referat. Zhurnal Khimiya, No 21, 1958, 71545.

Author : S. Minar.<sup>1 v</sup>

Inst

Title : Upon Corrosion of Optical Glass in Instruments  
Under the Influence of Atmospheric Agents.

Orig Pub: Jemna mech. a opt., 1957, 2, No 3, 79-83.

Abstract: The results of the author's experiments for the study  
of corrosion (C) of optical glasses (OS) under the  
conditions of a moist atmosphere (A) and weak solu-  
tions of acids are presented. The fundamental cause  
of the atmospheric corrosion of optical glasses is  
the implantation of steam in the pores of the silicium-

Card : 1/3

57

CZECHOSLOVAKIA/Chemical Technology. Chemical Products and  
Their Application. Part 2. - Ceramics. Glass.  
Binders. Concretes., - Glass.

H

Abs Jour: Referat. Zhurnal Khimiya, No 21, 1958, 71545.

oxygen skeleton of the surface film, where it disrupts the ionic bonds between oxygen and metal cations; that results in hydrolysis of glass and in the substitution of  $O = Me$  bonds with  $O = H$  or  $O = H_3O^+$  bonds OG-s with alkali cations are the most hydrophilic (hygroscopic); lead and boron OG-s are the least hydrophilic. But the latter are less stable under the action of weakly acid gases and liquids. Electron-microphotographs (enlargement 20,000 times) of OG-s, which were subject to atmospheric C 3 years, are presented. The author's experiments showed that alkaline OG-s AA are rapidly covered with a corroding film of moisture from the atmosphere, but that no film was found on barytic

Card : 2/3

CZECHOSLOVAKIA/Chemical Technology. Chemical Products and  
Their Application. Part 2. - Ceramics. Glass.  
Binders. Concretes. - Glass.

H

Abs Jour: Ref. Zhurnal Khimiya, No 21, 1958, 71545.

glass BaK<sub>4</sub> and on lead glass F2 under the same conditions (relative moisture 80%,  $50 \pm 1^\circ$ ). Methods accepted in USSR for testing the resistivity of OG-s to the formation of hygroscopic moisture films and turbidity under the action of weak acids (GOST 3514-51) are described. In order to prevent the formation of hygroscopic moisture films on OG-s in optical instruments, it is recommended to use OG-s resisting that formation and to protect the polished surface of OG-s with hydrophobic coatings. See the foregoing report in RZhKhim, 1958, 36604.

Card : 3/3

MINAR, S.

A study of the technological processes in the grinding and polishing of glass in the Soviet Union.

P. 126 (Jemna Mechanika a Optike. Vol. 2, no. 4, Aug. 1957, Praha, Czechoslovakia)  
February 1958

*MINAR, S*  
CZECHOSLOVAKIA/Optics - Optical Technology

K-4

Abs Jour : Ref Zhur - Fizika, No 7, 1958, No 16563

Author : Minar S.

Inst : Not Given

Title : Matting Processes in Optical Manufacture

Orig Pub : Jerna mech. a opt., 1957, 2, No 6, 169-171

Abstract : No abstract

Card : 1/1

1/1

~~MINAR, S.~~ MINAR, S.

CZECHOSLOVAKIA/Physical Chemistry - Crystals.

R.

Abs Jour : Ref Zhur - Khimiya, No 14, 1958, 45731

Author : Vaclav Cupr, Silvestr Minar, Vladimir Kleinwachter,  
Josef Prikryl

Inst : Brno Institute CSAV

Title : Study of Tertiary Zinc Phosphate.

Orig Pub : Prace Brnenske zaklad. CSAV, 1957, 29, No 1, 19-39

Abstract : The structure of tertiary Zn phosphate was studied by the x-ray method with the application of the differential thermal analysis. Solid phases were separated at temperatures of 37, 75 and 94° from the ZnO - P<sub>2</sub>O<sub>5</sub> - H<sub>2</sub>O system containing 11.8% of ZnO, 8.8% of P<sub>2</sub>O<sub>5</sub> and 79.4% of H<sub>2</sub>O, and the aging process of solid phases in the air was studied. The solid phase separated at 37° is a tetrahydrate. The solid phase separated at 75°

Card 1/2

CZECHOSLOVAKIA/Physical Chemistry - Crystals.

B.

Abs Jour : Ref Zhur - Khimiya, No 14, 1958, 45731

is a tetrahydrate while it is freshly deposited, but after two months of aging a mixture of tetrahydrate and dihydrate of the ratio 2 : 1 is formed. The solid phase separated at 94° was identified as a mixture of tetrahydrate with dihydrate, their ratio changing from 3 : 2 at the beginning of the aging process to 2 : 3 in its end.

Card 2/2

CZECHOSLOVAKIA/Optics - Optical Technology

K-4

Abstr Jour : Ref Zhur - Fizika, No 1, 1959, No 1899

Author : Minor S.

Inst : -

Title : New Theories in the Technology of Optical Glass

Orig Pub : Jerna tech. a opt., 1958, 3, No 4, 122-126

Abstract : Analysis of the latest theories of the process of polishing of optical glass: mechanical, chemico-mechanical, and chemical. It is shown that the polished surface is obtained not as a result of thermoplastic formation, but as a result of the tearing out of glass particles on the order of 100 Å in size.

Author's resume

Cord : 1/1

MINAR, S.

"Origin and structure of the cut surface in optical glass."

p. 17 (Jemna Mechanika A Optika) Vol. 3, no. 1, Jan. 1958  
Prague, Czechoslovakia

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 4,  
April 1958

MINAR, S.

Problem of drying and airtightness of optical and measuring instruments. p. 406

JEMNA MECHANIKA A OPTIKA. Praha, Czechoslovakia. Vol. 3, no. 12, Dec. 1958.

Monthly list of East European Accessions (EEAI) LC, Vol. 9, no. 2, Feb. 1960  
Und.

CZECHOSLOVAKIA/Optics.-

K-

Abs Jour : Ref Zhur Fizika, No 3, 1960, 7062

Author : Minar, S.

Inst : -

Title : Effect of Tropical Climate on Optical Instruments.

Orig Pub : Jemna mech. a opt., 1959, 4, No 7, 235-237

Abstract : The problem of tropicalization of instruments is raised, and the principal factors that influence the behavior of optical instruments under tropical conditions are summarized and considered. The effects of fungi and the method of fungus proofing is described in greater detail. Certain data on the corrosion of mechanical portions of the instrument are summarized.

Card 1/1

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15.2/20

AUTHOR: Minár, S., Doctor

TITLE: Causes of Stains Occurring on Polished Optical Glass During Manufacturing and Methods of Their Prevention

PERIODICAL: Jemná Mechanika a Optika, 1960, No 4, pp 107-111

TEXT: The author explains the cause of various types of stains on optical surfaces during the polishing process of glass, especially of phosphate and boric glass. Studies on the effect of water and of acids on polished surfaces of glass were made by Zschimmer [Ref 1] and Berger [Ref 2]; Faraday [Ref 3] and Greben-shchikov [Ref 4] dealt with the arising of stains. In this study the author reports on dull grey-brown stains and on antireflecting and reflecting stains on optical surfaces. A "Mikrometa" type miniature X-ray apparatus was used. Figure 1 shows a stain of extreme thickness which occurred at the polishing with ceric oxide. An up to now invisible apparently polished dull layer appeared below the first layer, covered by the polishing layer (Figure 2). The microstructural analysis of the polishing layer showed that the deflection curves at the debyeograms (Figure 3b) correspond to the deflection curves of the polishing powder (Figure 3a). The polishing powder's crystallites have a size of  $10^{-6}$  mm. During a close

Card 1/4

81150

Z/030/60/000/04/04/022

Causes of Stain Occurring on Polished Optical Glass During Manufacturing and Methods of Their Prevention

examination of polishing powders [Ref 5] it was stated that particularly polishing powders based on oxides and rare earth have the ability to form stains; this ability depends on the hydrophobic properties of powders. The imported polishing powders "Tecepol III" and "Polox" often show a considerable foam formation. The polishing powder's adhesion to the tool may be decreased by changing the suspension pH, adding various electrolytes, such as HCl, KOH,  $\text{NH}_4\text{OH}$ . The increase of the suspension's acidity to pH = 4 by admixture of acetic acid raised the adhesion between the  $\text{CeO}_2$  - polishing powder and the tool (Figure 4). The optimum burning-out temperature of  $\text{CeO}_2$  was precisely measured by means of a "Poliograf" equipment, developed by the UVUJM - Institute [Ref 8]. A detailed description of the analysis of reflecting interference stains appearing as silvery dots follows; such dots appeared close to iron (Figure 5 and 6), polishing red (Figure 7), chromium (Figure 8), magnesium (Figure 9), and zinc (Figure 10). Aluminum, manganese, zirconium, nickel,  $\text{CeO}_2$ -type polishing powder and "Polirit" did not cause any stains. The article reports on the effect of condenser water on polished optical surfaces and on antireflecting interference stains, caused by water or watery solutions. The appearance of such stains caused by atmospheric moisture

Card 2/4

81150

Z/030/60/000/04/04/022

Causes of Stain Occurring on Polished Optical Glass During Manufacturing and Methods of Their Prevention

is shown in Figure 11. A description of stains arising by the influence of perspiration on surfaces of glass of the 4th and 5th class is given, followed by an explanation of antireflecting interference stains by local hydrolytic decompositions of silicic compounds at the polished glass surface by means of acidic watery solutions according to the formula  $(\text{>Si-O-Me})_s + \text{H}^+ \rightarrow (\text{>SiOH})_s + \text{Me}^+$ . The watery film surrounding a dust particle or a sand grain has the same effect on the glass as a weak acid, shown in formula  $(\text{>SiOH})_s + \text{H}_2\text{O} \rightarrow (\text{>SiOH}_2\text{O})_s^{(-)} + \text{H}^{(+)}$ . This watery film dissociates, enriching the film with hydrogen ions according to formula  $(\text{>SiOH})_s + \text{H}_2\text{O} \rightarrow (\text{>SiOH}_2\text{O})_s^{(-)} + \text{H}^{(+)}$ . Metal chips at the damp polished glass surface cause an electrochemical decomposition of the metal within the electrolyte's watery film according to the formula  $\text{Me} \rightarrow \text{Me}^v + v\text{e}$ . Additional chemical reactions, causing a corrosion of the metal particles, follow the first reaction, for example according to the formulas  $2 \text{H}^{(+)} + 2 \text{e} \rightarrow \text{H}_2$ ;  $\text{H}_2\text{O} + 1/2\text{O}_2 + 2 \text{e} \rightarrow 2 \text{OH}^{(-)}$ ;  $\text{Me}^v^{(+)} + v(\text{OH})^{(-)} \rightarrow \text{Me}^v(\text{OH})_v$ . A detailed description is given on the appearance of corrosion stains, their mode of origin during the processing and their avoidance by the proper choice of polishing materials. Thirty combinations of lacs have been tested to find a so-called optical pro-

Card 3/4

81150

Z/030/60/000/04/04/022

Causes of Stain Occurring on Polished Optical Glass During Manufacturing and Methods of Their Prevention

tection lacquer<sup>16</sup> consisting of a suitable copolymer of the methacrylic acid's butyl and methyl esters, and of a polymer or a monomer. The lacquer's preservation and application methods are briefly described. Figure 12 shows the effect of the lacquer's composition on its adhesiveness to the glass. There are 10 photographs, 2 graphs and 8 references 3 of which are Czech, 2 are German 2 are Soviet and 1 English.

ASSOCIATION: ÚVOJM - Přerov

SUBMITTED: February 10, 1960

Card 4/4

MINAR, S., dr.

Polirograph UVOJM, a new measuring instrument for glass grinding and polishing. Jemna mech opt 5 no.2:46-47 F '60.

1. Ustav pro vyzkum optiky a jemne mechaniky, Prerov.